

LOW-VOLTAGE CLASS-AB OUTPUT STAGE AMPLIFIER

ABSTRACT

[0038] A programmable, rail-to-rail, low-voltage, micro-power harmonic-mean class-AB output stage with MOS devices employed in weak inversion is provided. The output stage MOS devices are arranged in the translinear loop, which avoids having a plurality of MOS devices in series between the power supply rails and thus enables low-voltage operation. The MOS devices in the translinear loop are used to implement the harmonic mean function $x \cdot y = z \cdot (x + y)$ where x and y are mirrored to the output and represent the quiescent push and pull currents, respectively. Circuit operational parameters may be varied to suit a variety of different applications. Increasing the supply voltage for given quiescent current will advantageously increase the maximum current load. Increasing the quiescent current for given supply voltage will advantageously lower the distortion of the output stage.

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